

What is Claimed:

1. A microscope comprising:  
an illumination source;  
5 a heat sink assembly surrounding said illumination source; and,  
a plurality of fins formed at said heat sink assembly and operatively arranged to  
conduct heat away from said illumination source and to transfer said heat to air passing  
by or over said assembly.
- 10 2. The microscope recited in Claim 1 wherein said heat sink further comprises an  
inner wall and an outer wall separated by an air gap.
3. The microscope recited in Claim 2 wherein a first fin from said plurality of fins is  
connected to said outer wall and a second fin from said plurality of fins is connected to  
15 said inner wall.
4. The microscope recited in Claim 1 further comprising:  
an air inlet; and,  
wherein said heat sink assembly further comprises a baffle located proximate said air  
20 inlet and operatively arranged to deflect air entering said microscope via said inlet and to  
occlude the emanation of light from said illumination source through said air inlet.
5. The microscope recited in Claim 4 wherein said heat sink assembly further  
comprises a baffle plate with a baffle slot;  
25 wherein said baffle is disposed on said baffle plate in substantial alignment with said  
baffle slot; and,  
wherein said baffle plate overlies said air inlet.
6. The microscope recited in Claim 5 wherein said baffle plate further comprises a  
30 first plurality of baffles and a plurality of corresponding baffle slots.

7. The microscope recited in Claim 6 wherein each baffle in said first plurality of baffles has a cross-section with an arcuate shape.

5 8. The microscope recited in Claim 6 wherein each baffle in said first plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a first direction.

9. The microscope recited in Claim 6 wherein said first plurality of baffles is divided  
10 into second and third pluralities of baffles; and,

wherein each baffle in said second plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a first direction and each baffle in said third plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a second direction, opposite said first direction.

15 10. The microscope recited in Claim 9 wherein said second plurality of baffles is disposed to direct air entering said microscope in said first direction and said third plurality of baffles is disposed to direct air entering said microscope in said second direction.

20 11. The microscope recited in Claim 6 wherein said air inlet further comprises a plurality of substantially parallel inlet slots; and,  
wherein said plurality of corresponding baffle slots is disposed substantially parallel to said plurality of inlet slots.

25 12. The microscope recited in Claim 6 wherein said air inlet further comprises a plurality of substantially parallel inlet slots; and,  
wherein said plurality of corresponding baffle slots is disposed substantially orthogonal to said plurality of inlet slots.

13. The microscope recited in Claim 5 further comprising:  
a base plate;

wherein said air inlet is disposed in said base plate; and,  
wherein said baffle plate is attached to said base plate and a thermally insulating layer is  
5 provided between said base plate and said baffle plate.

14. The microscope recited in Claim 4 further comprising:  
an air outlet; and,

wherein said heat sink assembly is operatively arranged to induce airflow into said air  
10 inlet, across said heat sink, and through said air outlet.

15. A microscope comprising:  
an air inlet; and,

a baffle assembly located proximate said air inlet and operatively arranged to  
15 divert air entering said microscope via said inlet and to occlude the emanation of light  
from said microscope through said air inlet.

16. The microscope recited in Claim 15 wherein said baffle assembly further  
comprises a baffle located proximate said air inlet.

20

17. The microscope recited in Claim 16 wherein said baffle assembly further  
comprises a baffle plate with a baffle slot; and,  
wherein said baffle is disposed on said baffle plate in substantial alignment with said  
baffle slot.

25

18. The microscope recited in Claim 17 wherein said baffle plate further comprises a  
first plurality of baffles and a plurality of corresponding baffle slots.

19. The microscope recited in Claim 18 wherein each baffle in said first plurality of  
30 baffles has a cross-section with an arcuate shape.

20. The microscope recited in Claim 18 wherein each baffle in said first plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a first direction.

5

21. The microscope recited in Claim 18 wherein said first plurality of baffles is divided into second and third pluralities of baffles; and,

wherein each baffle in said second plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a first direction and each  
10 baffle in said third plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a second direction, opposite said first direction.

22. The microscope recited in Claim 21 wherein said second plurality of baffles is disposed to direct air entering said microscope in said first direction and said third  
15 plurality of baffles is disposed to direct air entering said microscope in said second direction.

23. The microscope recited in Claim 18 wherein said air inlet further comprises a plurality of substantially parallel inlet slots; and,

20 wherein said plurality of corresponding baffle slots is disposed substantially parallel to said plurality of inlet slots.

24. The microscope recited in Claim 18 wherein said air inlet further comprises a plurality of substantially parallel inlet slots; and,

25 wherein said plurality of baffle slots is disposed substantially orthogonal to said plurality of inlet slots.

25. The microscope recited in Claim 17 further comprising:  
a base plate;

30 wherein said air inlet is disposed in said base plate; and,

wherein said baffle plate is mounted to said base plate and a thermally insulating layer is provided between said base plate and said baffle plate.

26. The microscope recited in Claim 15 further comprising:

5 an illumination source;

wherein said baffle assembly further comprises, proximate said illumination source, a heat sink having a plurality of fins operatively arranged to conduct heat away from said illumination source and to transfer said heat to air passing over said heat sink.

10 27. The microscope recited in Claim 26 wherein said heat sink further comprises an inner wall and an outer wall separated by an air gap.

28. The microscope recited in Claim 27 wherein a first fin from said plurality of fins is connected to said outer wall and a second fin from said plurality of fins is connected to  
15 said inner wall.

29. The microscope recited in Claim 26 further comprising:

an air outlet; and,

wherein said baffle assembly is operatively arranged to induce airflow into said air inlet,  
20 across said heat sink, and through said air outlet.

30. A heat sink assembly for a microscope comprising:

a baffle located proximate an air inlet of said microscope and operatively arranged to deflect air that enters said microscope via said inlet; and,

25 a heat sink located proximate said baffle and operatively arranged to transfer heat to said air.

31. The heat sink assembly recited in Claim 30 wherein said heat sink further comprises an inner wall and an outer wall separated by an air gap.

30

32. The heat sink assembly recited in Claim 30 wherein said heat sink further comprises a plurality of fins.

33. The heat sink assembly recited in Claim 32 wherein said heat sink further  
5 comprises an inner wall and an outer wall separated by an air gap.

34. The heat sink assembly recited in Claim 33 wherein a first fin from said plurality of fins is connected to said outer wall and a second fin from said plurality of fins is connected to said inner wall.

10 35. The heat sink assembly recited in Claim 30 wherein said microscope further comprises an illumination source; and,  
wherein said baffle occludes the emanation of light from said illumination source through said inlet.

15 36. The heat sink assembly recited in Claim 35 further comprising:  
a baffle plate with a baffle slot;  
wherein said baffle is disposed on said baffle plate in substantial alignment with said baffle slot; and,  
20 wherein said baffle plate overlies said air inlet.

37. The heat sink assembly recited in Claim 36 wherein said baffle plate further comprises a plurality of baffles and a plurality of corresponding baffle slots.

25 38. The microscope recited in Claim 37 wherein each baffle in said first plurality of baffles has a cross-section with an arcuate shape.

39. The microscope recited in Claim 37 wherein each baffle in said first plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate,  
30 disposed in a first direction.

40. The microscope recited in Claim 37 wherein said first plurality of baffles is divided into second and third pluralities of baffles; and,

wherein each baffle in said second plurality of baffles forms an opening, between  
5 an edge of said each baffle and said baffle plate, disposed in a first direction and each baffle in said third plurality of baffles forms an opening, between an edge of said each baffle and said baffle plate, disposed in a second direction, opposite said first direction.

41. The microscope recited in Claim 40 wherein said second plurality of baffles is  
10 disposed to direct air entering said microscope in said first direction and said third plurality of baffles is disposed to direct air entering said microscope in said second direction.

42. The microscope recited in Claim 37 wherein said air inlet further comprises a  
15 plurality of substantially parallel inlet slots; and,  
wherein said plurality of corresponding baffle slots is disposed substantially parallel to said plurality of inlet slots.

43. The microscope recited in Claim 37 wherein said air inlet further comprises a  
20 plurality of substantially parallel inlet slots; and,  
wherein said plurality of baffle slots is disposed substantially orthogonal to said plurality of inlet slots.

44. The heat sink assembly recited in Claim 36 wherein said microscope further  
25 comprises a base plate; and,  
wherein said air inlet is disposed in said base plate and said baffle plate is mounted to said base plate.

45. The heat sink assembly recited in Claim 44 wherein a thermally insulating layer is  
30 provided between said base plate and said baffle plate

46. The heat sink assembly recited in Claim 30 wherein said microscope further comprises an air outlet; and,

wherein said heat sink assembly is operatively arranged to induce airflow into said air inlet, across said heat sink, and through said air outlet.

47. The heat sink assembly recited in Claim 30 wherein said microscope further comprises an illumination source; and,

wherein said heat sink further comprises an aperture operatively arranged to receive said illumination source.

48. The heat sink assembly recited in Claim 30 wherein said microscope further comprises a collector lens; and,

wherein said heat sink further comprises means to mount said collector lens.

49. The heat sink assembly recited in Claim 30 wherein said microscope further comprises a microscope lamp assembly socket; and,

wherein said heat sink further comprises means to mount said microscope lamp assembly socket.

50. The heat sink assembly recited in Claim 30 wherein said microscope further comprises a microscope lamp assembly; and,

wherein said heat sink further comprises means to guide said microscope lamp assembly.